

# INTERNATIONAL SEARCH REPORT

Inter Application No  
PCT/IB2005/000458

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 B21C47/14 F16C17/03

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 B21C F16C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  
EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 543 712 B2 (GRIMMEL RÜDIGER ET AL) 8 April 2003 (2003-04-08) cited in the application column 1, line 33 - line 56	1,3-6,8, 18
Y	column 2, line 4 - line 19 column 2, line 54 - column 3, line 24; figures	2,7,9, 10,12,17
X	EP 0 684 093 A (DANIELI OFF MECC) 29 November 1995 (1995-11-29) cited in the application column 2, line 25 - line 29 column 2, line 48 - line 58 column 3, line 45 - line 56; claim 1; figures ----- -/-	1,2

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

7 June 2005

Date of mailing of the international search report

17/06/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Barrow, J

# INTERNATIONAL SEARCH REPORT

Inter Application No  
PCT/IB2005/000458

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6543712	B2	07-02-2002	DE 10035532 A1 31-01-2002 AT 285856 T 15-01-2005 DE 50104932 D1 03-02-2005 EP 1175945 A2 30-01-2002 JP 2002096112 A 02-04-2002 US 2002014549 A1 07-02-2002
EP 0684093	A	29-11-1995	IT UD940086 A1 27-11-1995 AT 182091 T 15-07-1999 DE 69510730 D1 19-08-1999 DE 69510730 T2 16-03-2000 EP 0684093 A1 29-11-1995 ES 2137397 T3 16-12-1999
US 2003113049	A1	19-06-2003	BR 0205265 A 20-07-2004 CA 2413317 A1 14-06-2003 CN 1429670 A 16-07-2003 EP 1319851 A2 18-06-2003 JP 2003200215 A 15-07-2003 TW 571033 B 11-01-2004 US 2003113050 A1 19-06-2003
US 4643592	A	17-02-1987	NONE
US 6135639	A	24-10-2000	NONE
US 5142177	A	25-08-1992	JP 1269722 A 27-10-1989 DE 3913053 A1 02-11-1989
US 3680932	A	01-08-1972	CA 950018 A1 25-06-1974